

# Engineering - COURSE DESCRIPTION

John Macuk, rm. 416

<http://macuk-arlington.wikispaces.com>

[jmacuk@arlington.k12.ma.us](mailto:jmacuk@arlington.k12.ma.us)

## What Engineering is about

Engineering is a process of design and experimentation; as such engineering is a project class. This class will not have a textbook; rather, we will be focusing on the Engineering Design Process and trying to create a Maker Space. This is a STEAM class, so we will also be learning basic algebra, geometry and trigonometry, drawing, prototyping, and communication skills.

| <i>First semester</i>   | <i>Second semester</i>  |
|---|---|
| <ul style="list-style-type: none"><li>• <i>Manufacture and Design</i></li></ul>                     | <ul style="list-style-type: none"><li>• <i>Fluids: design a boat</i></li></ul>                    |
| <ul style="list-style-type: none"><li>• <i>Forces and Statics: design a manila bridge</i></li></ul> | <ul style="list-style-type: none"><li>• <i>Electrical Engineering: design a circuit</i></li></ul> |



I expect my students to know and understand the **Arlington HS Mission and Expectations** and the **Student Handbook**, which you will find on the school website; below is a summary of how they will be applied in our class:

### Social and Civic Expectations

#### Personal Responsibility

- ✓ Students will be punctual and prepared for class.
- ✓ Students will bring a note for each absence and make up any work missed.

#### Social Responsibility

- ✓ Students will work safely in a variety of classroom settings.
- ✓ Students will practice respectful behavior in a variety of classroom settings.

#### Critical Thinking

- ✓ Students will read and analyze their textbook, assignments and assessments.
- ✓ Students will complete all assignments at an acceptable level and on time.

#### Communication

- ✓ Students will record homework in a planner and maintain a well-organized science notebook.
- ✓ Students will promptly return any material requiring a parent signature.

### Academic Expectations

#### Grading Scale:

- ✓ As described in the Student Handbook, but please note that I **do not treat D's as an acceptable grade!** If you have a less than passing grade (C-) on any work, I may expect you to redo the assignment to earn a passing grade!

#### Grading Categories:

- ✓ Classwork & Projects 80%
- ✓ Quizzes & Tests 20%
- 100%

#### Student Materials

- ✓ one composition book – **graph ruled**
- ✓ one 1.5" binder with at least **four (4) dividers**
- ✓ Pens and pencils
- ✓ Ruler, compass, protractor
- ✓ Basic Scientific Calculator

## Student 1<sup>ST</sup> HOMEWORK, due tomorrow

Go to my wiki page and complete the Student Data form, including the question below:  
What do I expect you to choose to do while you build your future now?

**Classwork and Homework:** While there will not be textbook homework, most of our projects will require research, design or testing at home. Scheduling in the appropriate time and with partners can be challenging. *See me or email me if you need help or are having difficulties! That's what I'm here for!*

For both projects and homework, I encourage my students to learn collaboratively, but each student must hand in original work of their own when required. See the **Student Handbook** for the school's Academic Integrity Policy, definitions of Academic Dishonesty and Plagiarism. *Tutoring others is encouraged – giving answers is not!*

In my classes, I try to encourage the same kind work habits that my students will do when they leave school and have their first jobs: rather than relying on tests for grades, I check my student's classwork constantly and give regular feedback on how they are doing. *Doing the work in small pieces regularly is much easier than the night before a presentation or quiz!*

In addition to formal documentation of projects, there will be quizzes covering general engineering principles and specific topics that we explore. *Expect to be quizzed on material – be prepared!*



### **What you can do to help your child:**

**Ask** what she did in school today: if she says “nothing” or can’t show you her notes and project progress, prompt her to produce them!

*We will be doing something fun and exciting and learning new things every day! (...OK, practically every day...)*

**Attendance** is a crucial element of success at Arlington HS. In this class, performance is the largest part of the grade; if your child misses class, it is her responsibility to find out what she missed and make up classwork and homework.

*(NB Assignments missed due to **unexcused absences or suspensions** may not get any credit!)*

**Homework** is exercise for your brain that strengthens your mental muscles; the most important thing you can do for your child is to provide a quiet space to study and to check that homework is being done. If your child says there is no homework assignment, ask to see her assignment planner.

*The best way to improve your grade is to do all assignments on time, and re-do poor ones!*

**Communicate** with me if you are concerned about your child's homework, or want to know how she is doing in class.

*Visit my Wiki page <http://macuk-arlington.wikispaces.com> and e-mail me at [jmacuk@arlington.k12.ma.us](mailto:jmacuk@arlington.k12.ma.us).*

I look forward to a great year with you!

*Mr. Macuk*

---

### **Parent 1<sup>ST</sup> HOMEWORK, due tomorrow**

Please go to my wiki page and complete the Parent Link form.

Add any questions or concerns you want to ask me about.